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Heterelеotris georgegilli, a new species of gobiid fish, with notes on other Mauritian *Heterelеotris* species

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SYNOPSIS. *Heterelеotris georgegilli*, described from six specimens, 19.7–22.5 mm SL, is distinguished from congeners by the following combination of characters: second dorsal-fin rays I,10–11, usually I,10; anal-fin rays I,9; scales ctenoid, restricted to posterior part of body and caudal peduncle (behind segmented dorsal-fin ray 5–7); and head pores present (posterior nasal, median anterior interorbital, posterior interorbital, infraorbital, postorbital and terminal lateral canal pores). Four additional *Heterelеotris* species are recorded from Mauritius: *H. apora*, *H. poecila*, *H. vinsoni* and *H. zanzibarensis*. The first-named two species represent new records for Mauritius. Limited data suggest that Mauritian *Heterelеotris* assort into different habitats.

INTRODUCTION

In 1995 the author participated in a six-week expedition to survey shorefishes of Mauritius, Indian Ocean, along with associates from the Smithsonian Institution, J.L.B. Smith Institute of Ichthyology and Port Elizabeth Museum. Among the fishes collected were six specimens of a new species of the genus *Heterelеotris* Bleeker, 1874. The new species is herein described and compared with congeners; other Mauritian *Heterelеotris* species are also discussed.

Heterelеotris species are distinguished from other gobiids by the following combination of characters: half or more of lower part of first gill slit closed by membrane; distinct, single-lobed mental frenum; distinctive superficial neuromast arrangement below eye (see Figs 1,2); first dorsal fin with six spines and pterygiophore formula of 3-22110; and vertebrae 10 + 17 (Akihito & Meguro, 1981; Hoese, 1986).

The genus is most diverse in the western Indian Ocean, with 13 species (revised by Hoese, 1986); the present study brings the total to 14. Only one described species [*H. poecila* (Fowler)] is known from the Pacific Ocean, but it also occurs in the Western Indian Ocean. However, Hoese (1986) noted that three undescribed species occur in the Pacific (one from the West Pacific, one from Rapa and one from Easter Island), and Gill & Reader (1992) recorded an additional undescribed species from Middleton and Elizabeth reefs, southern Coral Sea.

MATERIALS AND METHODS

Measurements to the snout tip were made to the midanterior tip of the upper jaw; standard length (SL) from the snout tip to the midposterior part of the hypural plate; head length from the snout tip to the posterior (vertical), fleshy edge of the operculum. Eye diameter was measured horizontally where greatest. Preanal, predorsal and prepelvic lengths were measured from the snout tip to the anterior edge of the first spine base of the relevant fin. Distance between first and second dorsal-fin origins was measured between the anterior edges of the first spine base of each fin. Caudal peduncle depth was the shallowest depth of the peduncle. Caudal peduncle length was measured from the posterior edge of the last anal-fin ray base to the ventral edge of the caudal peduncle at the vertical through the posterior edge of the hypural plate. Fin ray lengths were measured from the bases of the rays to their tips. Caudal fin length was the length of the lowermost ray articulating with the upper hypural plate (*i.e.*, hypurals 3 + 4). Pectoral fin length was the length of the longest ray. Pelvic fin length was measured from the base of the spine to the distal tip of the fourth segmented ray. The pattern of interdigitation of first dorsal-fin pterygiophores with neural spines is given as a first dorsal pterygiophore formula following the methods of Birdsong *et al.* (1988). Terminology of head pores and other methods of counting and measuring follow Hoese (1986) or are self explanatory. Osteological details were determined from radiographs and from a paratype that was cleared and stained for cartilage and bone (Potthoff, 1984). Meristic and morphometric values are given first for the holotype, followed where different by value ranges or frequency distributions for the paratypes. Frequency distributions are presented in the form 'x fy,' where 'x' is the count and 'f' indicates that the following value, 'y,' is its frequency. Where counts were recorded bilaterally from the holotype, both values are presented and separated by a slash; the first value given is the left count.

Comparisons of *H. georgegilli* with congeners were based on published data (particularly those provided by Akihito & Meguro, 1981, and Hoese, 1986), specimens obtained in Mauritius by the author and colleagues (see below; museum codes follow Leviton *et al.*, 1985), and the following specimens in The Natural History Museum: *H. bipunctata* Tortonese, 1976, Yemen, Aden, BMNH 1985.7.29.3–6 (3); *H. diademata* (Rüppell, 1830), Gulf of Suez, BMNH 1925.12.31.51 (1; holotype of *Lioteres (Pseudolioteres) simulans* Smith, 1958); *H. vulgare* (Klunzinger, 1871), Red Sea, BMNH 1979.6.20.40–43 (4); *H. zonata* (Fowler, 1934), South Africa, Durban, BMNH 1919.4.1.21–22 (2), Persian Gulf, BMNH 1900.5.8.93 (2), Mekran Coast, BMNH 1899.5.8.93 (1).

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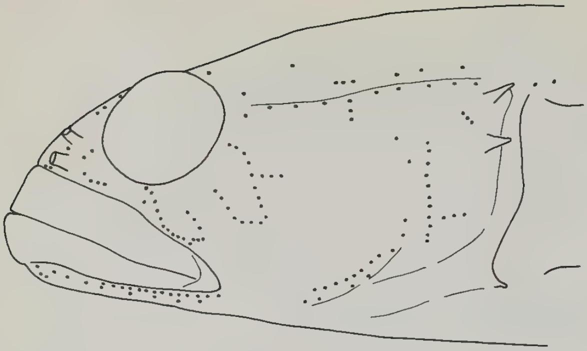

Fig. 1 *Hetereleotris apora*, diagram of head in lateral view showing positions of superficial neuromasts of lateraosensory system (composite based on several specimens from Mauritius).

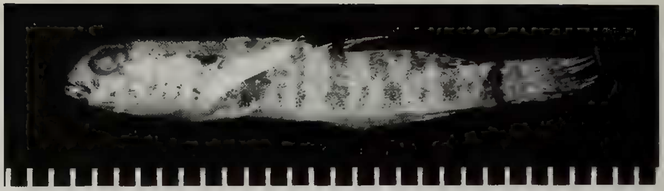

Fig. 3 *Hetereleotris georgegilli*, holotype, USNM 344315, 19.7 mm SL, Flic en Flac, Mauritius.

SYSTEMATIC ACCOUNT

Hetereleotris georgegilli sp. nov.

Figs 2–6

HOLOTYPE. USNM 344315, 19.7 mm SL female, Mauritius, Flic en Flac, 30 m north of entrance to lagoon, 20°16'S 057°22'E, around small coral bommie on coral, coral-rock, sand and silt bottom, 4–10 m, A.C. Gill, D.G. Smith, M.J. Smale, W. Holleman, P. Clark and B. Galil, 05 May 1995 (field no. PCH 95-M20).

PARATYPES. Mauritius: BMNH 1997.10.24.1, 1: 20.3 mm SL female (subsequently cleared and stained), BMNH 1997.10.24.2, 1: 22.5 mm SL male, RUSI 56870, 1: 19.8 mm SL female, collected with holotype; USNM 344316, 1: 20.7 mm SL male, Albion, off Pointe Petite Riviere at end of Avenue Victory, surge area and adjacent gutters with sand, pebble and rock bottoms, 0–5 m, A.C. Gill, M.J. Smale and W. Holleman, 15 May 1995 (field no. PCH 95-M23); USNM 344317, 1: 22.3 mm SL male, Passe de L'Ambulante, off Le Morne, outside lagoon, 20°26'10"S 057°17'40"E, spur and groove with surge, 6–8 m, P.C. Heemstra, A.C. Gill, D.G. Smith, M.J. Smale, W. Holleman, P. Clark, *et al.*, 18 May 1995 (field no. PCH 95-M30).

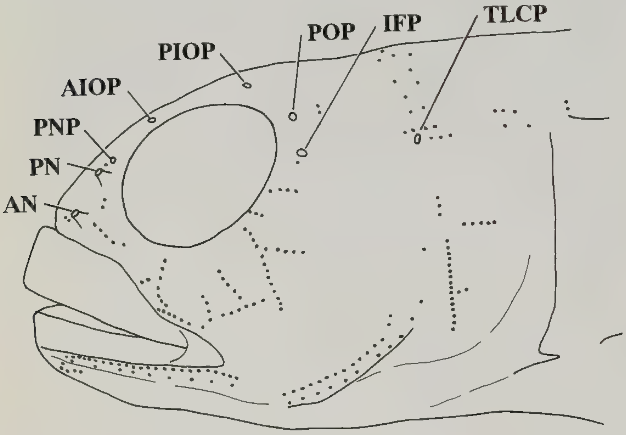

Fig. 2 *Hetereleotris georgegilli*, diagram of head in lateral view showing positions of laterosensory pores and superficial neuromasts (composite, based primarily on holotype, USNM 344315, and cleared and stained paratype, BMNH 1997.10.24.1). Abbreviations: AIOP, anterior interorbital pore; AN, anterior nostril; IFP, infraorbital pore; PIO, posterior interorbital pore; PN, posterior nostril; PNP, posterior nasal pore; POP, postorbital pore; TLCP, terminal lateral canal pore.

DIAGNOSIS. *Hetereleotris georgegilli* is distinguished from congeners by the following combination of characters: second dorsal-fin rays I,10–11, usually I,10; anal-fin rays I,9; scales ctenoid, restricted to posterior part of body and caudal peduncle (behind segmented dorsal-fin ray 5–7); and head pores present (posterior nasal, median anterior interorbital, posterior interorbital, infraorbital, postorbital and terminal lateral canal pores).

DESCRIPTION. Dorsal-fin rays VI + I,10 (I,10 f4; I,11 f1); anal-fin rays I,9; pectoral-fin pointed with 18/18 (16 f1; 17 f2; 18 f7) rays, the lower 1 (0 f8; 1 f2) ray unbranched, remaining rays branched; upper 3–5 pectoral-fin rays with free tips; lower pectoral-fin rays slightly thickened, more robust than upper rays; pelvic-fin rays I,5; branches on first segmented pelvic-fin ray 5/4 (4 f10); branches on second pelvic-fin ray 5/5 (4 f4; 5 f5; 6 f1); branches on third pelvic-fin rays 6/6 (4 f1; 5 f6; 6 f3); branches on fourth segmented pelvic-fin ray 5/5 (3 f3; 4 f4; 5 f3); fifth 'segmented' pelvic-fin ray unbranched, with few or no segments, much shorter than other segmented rays (subequal to or shorter than spine) and inconspicuous (clearly visible only after dissection; Fig. 4); pelvic fins fully separate, without connecting membrane or fraenum (Fig. 5); segmented caudal-fin rays 9 + 8; branched caudal-fin rays 8 + 8 (7 + 7 f1; 8 + 7 f4); upper unsegmented caudal-fin rays 5 (4 f1; 5 f4); lower unsegmented caudal-fin rays 4 (4 f2; 5 f3); vertebrae 10 + 17; first dorsal pterygiophore formula 3-22110; anal pterygiophores preceding first haemal spine 2; epurals 1.

Scales ctenoid, restricted to posterior part of body and caudal peduncle, extending anteriorly as narrow midlateral wedge or band to vertical through second dorsal-fin segmented ray 6/5 (5 f5; 6 f4; 7 f1; Fig. 6); lateral scale rows 11/11 (10 f2; 11 f5; 12 f1; 13 f2).

First gill arch broadly joined to suspensorium by membrane; gill opening restricted to pectoral-fin base; branchiostegal rays 5.

Premaxilla with 3 or 4 irregular rows of conical teeth anteriorly,

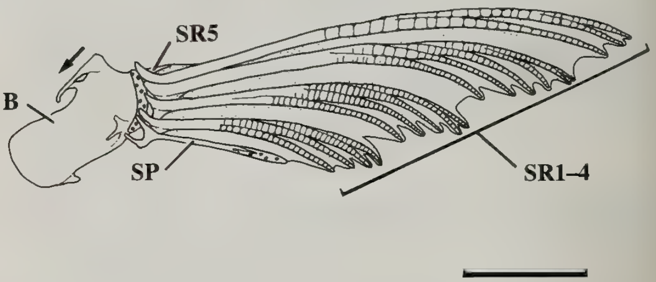

Fig. 4 *Hetereleotris georgegilli*, cleared-and-stained paratype, BMNH 1997.10.24.1, 20.3 mm SL, ventral view of right pelvic fin and basipterygium. Abbreviations: B, basipterygium; SP, spine; SR 1–5, segmented rays 1–5. Large stipple indicates blue-stained material (see text); small stipple indicates interradial membranes. Arrow points anteriorly. Scale = 1 mm.

reducing to 1 or 2 rows posteriorly, the teeth of outer row largest and caniniform; inner row of teeth across front of premaxilla slightly curved and enlarged; dentary with 3 or 4 irregular rows of conical teeth anteriorly, reducing to a single row posteriorly, the outer row of teeth largest and caniniform; inner row of teeth across front of dentary slightly curved and enlarged; palatine and vomer edentate; tongue edentate and weakly rounded to truncate, sometimes with weak indentation anteriorly.

Cephalic sensory pores (see Fig. 2): posterior nasal 1/1; anterior interorbital 1; posterior interorbital 1; infraorbital 1/1; postorbital 1/1; lateral canal 0/0; terminal lateral canal 1/1. Distribution of superficial neuromasts (cutaneous papillae) on head as shown in Fig. 2. Male urogenital papilla pointed posteriorly, with inconpicuous lobe on either side of narrow gonopore, the posterior edge of papilla papillose; female urogenital papilla subrectangular, truncate, with weak lobe on each side of wide gonopore, the gonopore rim papillose. Epaxial musculature extending anteriorly to posterior interorbital pore.

As percentages of SL: head length 32.0 (30.7–32.4); eye diameter 9.6 (9.0–10.1); head width at posterior preopercular margin 24.9 (23.3–28.0); head depth at posterior preopercular margin 18.8 (17.5–19.7); body depth at pelvic-fin origin 20.3 (18.4–20.2); body depth at anal-fin origin 16.8 (16.2–17.2); caudal peduncle depth 11.2 (10.2–11.1); caudal peduncle length 19.3 (17.9–19.6); predorsal length 40.1 (38.1–39.4); prepelvic length 30.5 (28.9–31.3); preanal length 58.9 (58.6–60.0); distance between first and second dorsal-fin origins 19.3 (17.9–20.7); second dorsal-fin base length 27.4 (27.6–28.8); third dorsal-fin spine length 10.7 (11.6–14.3); third from last segmented dorsal-fin ray length 14.7 (14.5–16.1); anal-fin base length 23.9 (21.7–23.3); third from last segmented anal-fin ray length 14.7 (14.6–15.7); pectoral fin length 29.4 (27.1–30.5); pelvic fin length 22.8 (19.6–23.2); caudal fin length 24.9 (24.4–26.3).

COLOUR OF PRESERVED SPECIMENS. Head and body pale brown with dusky brown to grey-brown reticulate mottling, this darkest dorsally; mottling forming about eight weak bars, the first through upper base of pectoral fin, the last through base of caudal fin; last bar dark grey, distinctly darker than all other bars; dusky grey bar extending from anteroventral edge of eye to middle of upper lip, contiguous ventrally with dusky grey bar or spots on lower lip and chin; dark grey spot on upper part of pectoral-fin base, this extending on to basal third of upper few rays; dorsal fins pale to hyaline with diffuse dusky bars extending obliquely from each body bar; dorsal fin sometimes with dark grey distal margin (observed only in two of three males); anal fin pale to hyaline, sometimes with two or three irregular dusky grey stripes; caudal fin pale to hyaline, with dark grey basal bar (see above) and about five to eight irregular dusky bars; pectoral fins pale to hyaline with dark grey spot dorsally (see above) and irregular dusky bars; large white spot immediately below and behind dark spot on upper part of pectoral fin, the white spot edged posteriorly in dusky to dark grey; pelvic fins pale, sometimes with scattered melanophores basally.

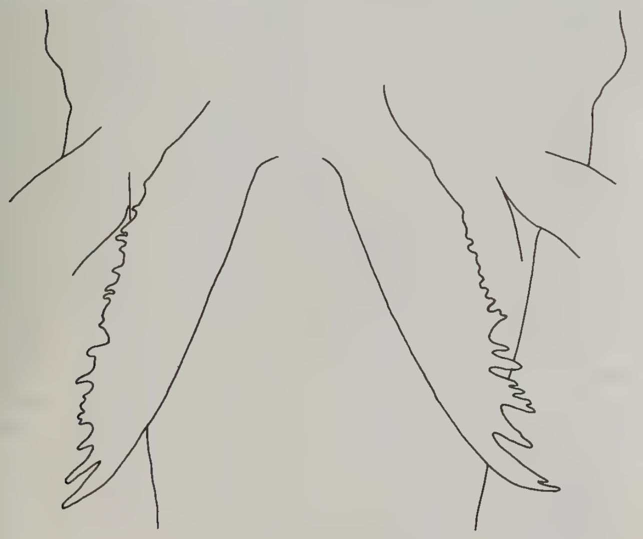

Fig. 5 *Heterelotris georgegilli*, holotype, USNM 344315, 19.7 mm SL, outline of pelvic fins in ventral view.

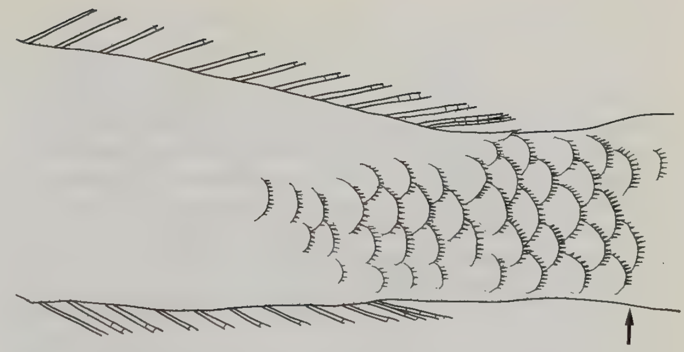

Fig. 6 *Heterelotris georgegilli*, holotype, USNM 344315, 19.7 mm SL, diagram of posterior part of body and caudal peduncle showing scalation. Arrow indicates vertical through posterior edge of hypural plate.

COLOUR IN LIFE. Not recorded.

ETYMOLOGY. The specific epithet is in memory of my father, George Burton Gill (1925–1994).

COMPARISONS WITH OTHER *HETERELEOTRIS* SPECIES. Hoese's (1986) key to western Indian Ocean *Heterelotris* identifies specimens of *H. georgegilli* as *H. nebulofasciata* (Smith, 1958), a species currently known only from east Africa (Kenya to Mozambique) and the Comores (R. Winterbottom, pers. comm.). *Heterelotris georgegilli* and *H. nebulofasciata* differ from congeners in having the following character combination: scales confined to posterior part of body and caudal peduncle; head pores present; and preopercular pores absent. The two species also have a similar preserved colour pattern. However, *H. georgegilli* differs from *H. nebulofasciata* in having: fewer segmented rays in the second dorsal fin (10–11, usually 10 versus 11); fewer segmented anal-fin rays (9 versus 9–10, usually 10); more pectoral-fin rays (16–18, usually 18 versus 15–16); ctenoid scales (versus cycloid); fifth segmented pelvic-fin ray unbranched and short (versus relatively well-developed, slightly shorter than fourth segmented ray, unbranched or branched once); and a prominent dark spot on the dorsal part of the pectoral fin (lacking in *H. nebulofasciata*).

Heterelotris georgegilli resembles *H. apora* (Hoese & Winterbottom, 1979) from Mauritius (see below), South Africa, Saint Brandon Shoals, the Comores and the Chagos Archipelago in having: scales ctenoid and confined to caudal peduncle; and fifth segmented pelvic-fin ray reduced (usually absent in *H. apora*). *Heterelotris apora* differs from *H. georgegilli* in having: two prominent opercular spines (versus spines lacking); fewer lateral scales (4–6 versus 10–13); no head pores (versus head pores present); fewer pectoral-fin rays (15–16 versus 16–18, usually 18); more segmented second dorsal-fin rays (10–11, usually 11 versus 10–11, usually 10); and more segmented anal-fin rays (9–10, usually 10 versus 9).

REMARKS. Two of the three collections that yielded specimens of *H. georgegilli*, were in surge areas (PCH 95-M23 and PCH 95-M30), and the remaining collection was in an area exposed to tidal currents (PCH 95-M20); all collections were in 4–10 m. Thus, *H. georgegilli* appears to be restricted to shallow subtidal, high-energy habitat.

The tip of the pelvic-fin spine of the cleared and stained paratype of *H. georgegilli* took up alcian blue stain (Fig. 4). Birdsong *et al.* (1988: 197) noted similar blue-staining in *Awaous* and sicydiine gobiids and interpreted 'a fleshy (cartilaginous) tip on each pelvic spine' as a potential synapomorphy of these taxa. However, histological studies in progress by L.R. Parenti and the present author indicate that fin spines of many acanthomorphs stain with alcian blue, but that the blue-staining material is keratin not cartilage.

COMMENTS ON OTHER MAURITIAN *HETERELEOTRIS*

ECOLOGICAL NOTES. Hoese (1986) recorded two species of *Hetereleotris* from Mauritius, *H. vinsoni* Hoese, 1986 and *H. zanzibarensis* (Smith, 1958). The 1995 collections yielded both of these species and three others: *H. apora* (Hoese & Winterbottom, 1979), *H. georgegilli*, and *H. poecila* (Fowler, 1946). Specimens of *Hetereleotris* were collected at thirteen stations (Table 1). Details for three of the stations (PCH 95-M20, PCH 95-M23 and PCH 95-M30) are provided above in the list of type materials for *H. georgegilli*. Locality and habitat details for the remaining ten stations are as follows:

PCH 95-M1: Bai de la Petite Riviere, off Albion Fisheries Research Centre, around coral bommies on sand and rubble bottom, 0.3–1.9 m.
PCH 95-M5: Bai de la Petite Riviere, just south of Pointe Petite Riviere at north end of Albion public beach, around rocks and patch reefs on sand, rock and rubble bottom, 0–1.5 m.
PCH 95-M9: Albion, Pointe Petite Riviere at end of Avenue Victory, rock pools, 0–1 m.
PCH 95-M10: Bai de la Petite Riviere, off Albion Fisheries Research Centre, 20°12'30"S 57°23'E, boulders on sand and gravel bottom, 10–12 m.
PCH 95-M11: Bai de la Petite Riviere, off Albion Fisheries Research Centre, 20°12'00"S 57°23'E, around coral bommie and adjacent coral, rubble and sand, 9–11 m.
PCH 95-M13: Bai de la Petite Riviere, southwest of Albion Fisheries Research Centre, around coral bommie, 10–11 m.
PCH 95-M18: Bai de la Petite Riviere, off Albion Fisheries Research Centre, just outside reef crest, 20°12'30"S 057°23'30"E, around caves and along 2–3 m dropoff in front of reef platform, 4–8 m.
PCH 95-M22: Trou aux Biches lagoon near boating channel, around coral bommies and patch reefs (mainly *Acropora*) and adjacent sand and rubble, 4–5 m.
PCH 95-M27: Albion, off Pointe Petite Riviere at end of Avenue Victory, 10–11 m.
PCH 95-M32: rocky shore at Bel Air, 20°30'30"S 57°34'30"E, rock pools, 0–1 m.

Despite the limited data, there is some indication of ecological separation of the species (Table 1). Of the 13 stations that yielded specimens of the genus, one had three species, seven had two species, and five had only one species. Overlap can be largely attributed to a single species, *H. zanzibarensis*; it was collected from a variety of habitats ranging from rock pools to reefs in 0–12 m, and was present at each of the stations that yielded more than one *Hetereleotris* species. The remaining species were collected from more restricted habitats: *H. apora* from around bommies, reef and boulders in 4–12 m; *H. georgegilli* from surge and tidal-current areas in 4–10 m; *H. poecila* from rock pools in 0–1 m; and *H. vinsoni* from around coral bommies and patch reefs in 0.3–1.9 m.

Table 1 Number of specimens of *Hetereleotris* collected by the author and associates in Mauritius in 1995. See text for locality and habitat data for each station.

	PCH 95-M station number												
	1	5	9	10	11	13	18	20	22	23	27	30	32
H. apora	–	–	–	1	–	2	3	8	–	–	2	–	–
H. georgegilli	–	–	–	–	–	–	–	4	–	1	–	1	–
H. poecila	–	–	5	–	–	–	–	–	–	–	–	–	5
H. vinsoni	5	2	–	–	–	–	–	–	–	–	–	–	–
H. zanzibarensis	5	1	2	1	1	–	18	2	4	2	–	2	–

TAXONOMIC NOTES. *Hetereleotris apora*. Hoese & Winterbottom (1979) described *H. apora* (as *Lioteres aporus*) from four specimens from Sodwana Bay, South Africa. Winterbottom & Emery (1985) recorded the species from the Chagos Archipelago, and Hoese (1986) recorded it from Saint Brandon Shoals. R. Winterbottom (pers. comm.) has also collected it recently from the Comores. Sixteen specimens collected by the author and associates represent a new record for Mauritius: PCH 95-M10 [USNM 344319 (1 spec.)]; PCH 95-M13 [USNM 344320 (2)]; PCH 95-M18 [BMNH 1997.10.24.3 (1), RUSI 56871 (1), USNM 348368 (1)]; PCH 95-M20 [BMNH 1997.10.24.4–5 (2), RUSI 56872 (2), USNM 344321 (4)]; PCH 95-M27 [BMNH 1997.10.24.6 (1), USNM 344322 (1)]. The Mauritian specimens agree well with the descriptions given by Hoese (1986) and Hoese & Winterbottom (1979), except that the superficial neuromasts are more extensive (cf. their Fig. 2 with Fig. 1). However, this apparent difference is probably not real as superficial neuromasts are easily abraded and often difficult to see.

Hetereleotris poecila. Fowler (1946) described *H. poecila* (in his new monotypic genus *Riukiua*) based on a specimen from Aguni Shima, Ryukyu Islands. Akihito & Meguro (1981) reported on additional specimens from Japan, and Hoese (1986: 14) extended the range to include Taiwan (two specimens), Grand Comore Island (one specimen) and Sri Lanka (23 specimens). Its range is further extended here to Mauritius based on ten specimens collected by the author and associates: PCH 95-M9 [BMNH 1997.10.24.7–8 (2 specs), RUSI 56873 (1), USNM 344333 (2)] and PCH 95-M32 [BMNH 1997.10.24.9 (1), RUSI 56874 (1), USNM 344334 (3)].

Hoese (1986) noted slight differences in pectoral-fin ray number between the Pacific and Indian Ocean specimens: 16–18 with a strong mode of 17 for Indian Ocean specimens versus 16 or 17 with a weak mode of 16 for Pacific Ocean specimens. The following counts were observed in the Mauritian specimens (adult specimens checked only; bilateral counts included): 17 f1; 18 f13. More materials are needed to determine the systematic significance of the relatively high numbers of pectoral-fin rays in the Mauritian specimens. The specimens agree in all other respects with the descriptions provided by Akihito & Meguro (1981) and Hoese (1986).

Hetereleotris vinsoni. Hoese (1986) described *H. vinsoni* from the holotype and 14 paratypes from Mauritius, and from two paratypes from Saint Brandon Shoals; he also listed a non-type specimen from Mozambique. Seven specimens were collected by the author and associates in Mauritius in station PCH 95-M1 [BMNH 1997.10.24.10

–11 (2 specs), RUSI 56875 (1), USNM 344318, (2)] and PCH 95-M5 [USNM 348369 (2 specs)]. The specimens agree well with Hoese's original description and figures of the species. (Note that Hoese's Fig. 5 of the cephalic laterosensory system of this species has been inadvertently swapped with his Fig. 3 for *H. margaretae*.)

Hetereleotris zanzibarensis. Smith (1958) described *H. zanzibarensis* from a specimen from Zanzibar (as a new genus and species of eleotrid(id), *Satulinus zanzibarensis*); later (Smith, 1959) he described the species a second time (as a new species of gobiid, *Monishia oculata*) from specimens from Mahé, Seychelles (type locality), Kenya and Mozambique. Hoese (1986) extended its range to include the Agelega Islands, Saint Brandon Shoals and Mauritius, and R. Winterbottom (pers. comm.) has recently collected it at the Comores. Thirty-eight specimens were collected by the author and associates in Mauritius: PCH 95-M1 [BMNH 1997.10.24.12–13 (2 specs), RUSI 56876 (1), USNM 344323 (2)]; PCH 95-M5 [USNM 344324 (1)]; PCH 95-M9 [USNM 344325 (2)]; PCH 95-M10 [USNM 344326 (1)]; PCH 95-M11 [USNM 344327 (1)]; PCH 95-M18 [BMNH 1997.10.24.14–18 (5), RUSI 56877 (4), USNM 344328 (9)]; PCH 95-M20 [BMNH 1997.10.24.19 (1), USNM 344329 (1)]; PCH 95-M22 [BMNH 1997.10.24.20 (1), RUSI 56878 (1), USNM 344330 (2)]; PCH 95-M23 [USNM 344331 (2)]; PCH 95-M30 [USNM 344332 (2)].

Hoese (1986) noted that *H. zanzibarensis* varies considerably in the development of the pelvic-fin disc, with some specimens possessing a complete disc (*i.e.,* with a low fraenum connecting the spine bases and a membrane connecting the fifth segemented rays) and others possessing barely united pelvic fins (*i.e.,* no apparent fraenum between spine bases and fifth segmented rays connected only at their bases). This variation led Smith (1958, 1959) to place *Satulinus zanzibarensis* and *Monishia oculata* in separate families; until recently, development of the pelvic-fin disc was the primary basis for separation of the Gobiidae from the Eleotrididae. The Mauritian specimens examined here agree well with the pelvic-fin variation noted by Hoese (1986); approximately half of the specimens have a completely developed disc and the remainder have incompletely united fins.

Hoese (1986) noted highly variable pectoral-fin-ray counts for *H. zanzibarensis*. Similar highly variable counts were noted for the Mauritian specimens examined here. Bilateral counts recorded from a subsample of the specimens were: 16 f7; 17 f19; 18 f6.

ACKNOWLEDGEMENTS. I am grateful to the other members of the 1995 Mauritius expedition: P. Clark, B. Galil, P.C. Heemstra, W. Holleman, M.J. Smale and D.G. Smith. I am particularly indepted to D.G. Smith for his efforts and company during the sorting and identification of specimens at the Smithsonian Institution. The success of the expedition owes much to the kind assistance of D. Pelicier and of Mauritian Fisheries officials, particularly staff of the Albion Fisheries Research Centre. *Hetereleotris* specimens were radiographed by S. Davidson, and P. Hurst photographed the holotype of *H. georgegilli*. Drafts of the manuscript were read and improved from comments by D.F. Hoese, N.R. Merrett, R.D. Mooi and R. Winterbottom.

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